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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MERKLING, MATTHEW J	

ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
02/01/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/787,089	KOJIMA, MASAAKI	
	Examiner	Art Unit	
	Matthew J. Merkling	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5-9,11,12,14-18,20 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5-9,11,12,14-18,20 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/ are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/21/07 has been entered.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1, 12 and 21 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,770,116.

Although the conflicting claims are not identical, they are not patentably distinct from each other. Claims 1, 12 and 21 of the instant application are considered generic to claim 1 of the patent.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 21 is rejected under 35 U.S.C. 102(e) as being anticipated by Kumagai (US 6,090,187).

Regarding claim 21, Kumagai discloses an exhaust gas purification apparatus (see abstract) comprising:

a casing (4a, 4b);

a honeycomb-like filter (5a, 5b, col. 4 lines 6-10) accommodated in the casing and the honeycomb-like filter being configured to remove particulates in an exhaust gas (filter, see abstract);

a regeneration device (Fig. 1) configured to cause the honeycomb-like filter to be preheated with heat of the exhaust gas before regenerating the honeycomb-like filter (seeing that the exhaust gas is passed through the filter

prior to being regenerated, the exhaust gas inherently preheats the honeycomb filter, see col. 6 lines 17-47);

a heating means (7a, 7b);

a switch valve (6a, 6b) positioned adjacent to the casing and configured to switch a flow of the exhaust gas (see Fig. 1),

wherein the regeneration device comprises a first temperature detector and pressure detector (17 and 18 respectively) configured to detect a temperature and pressure in/downstream of the casing (see temperature sensor 17 and pressure sensor 18 downstream of filter 5a in Fig. 1), a second temperature detector and second pressure detector configured to detect a temperature and pressure of the exhaust gas (see temperature sensor 17 and pressure sensor 18 upstream of filter 5a in Fig. 1), and a processor (ECU, 10) configured to make a comparison of the temperature in the casing with the temperature of the exhaust gas, open the switch valve based on the comparison and preheat the honeycomb-like filter with the exhaust gas (see col. 5 lines 18-33 where Kumagai discloses a "filter accumulation amount detection function" which compares the pressure and temperature upstream of the filter (exhaust pressure/temperature) and the pressure and temperature downstream of the filter (casing temperature/pressure) and subsequently opens a switch valve (8) to initiate the filter regeneration).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1, 7-9, 11, 12, 16-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumagai (US 6,090,187) in view of Ono et al. (JP 11-236813 A1).

Regarding claims 1, 9, 11, 12, 18 and 20, Kumagai discloses an exhaust gas purification apparatus (see abstract) comprising:

a casing (first and second casings, 4a, 4b);

a honeycomb-like filter (5a, 5b, col. 4 lines 6-10) accommodated in the casing and the honeycomb-like filter being configured to remove particulates in an exhaust gas (filter, see abstract);

a regeneration device (Fig. 1) configured to cause the honeycomb-like filter to be preheated with heat of the exhaust gas before regenerating the honeycomb-like filter (seeing that the exhaust gas is passed through the filter

prior to being regenerated, the exhaust gas inherently preheats the honeycomb filter, see col. 6 lines 17-47); and

a switch valve (6a, 6b) positioned adjacent to the casing and configured to switch a flow of the exhaust gas (see Fig. 1),

wherein the regeneration device comprises a first temperature detector and pressure detector (17 and 18 respectively) configured to detect a temperature and pressure in/downstream of the casing (see temperature sensor 17 and pressure sensor 18 downstream of filter 5a in Fig. 1), a second temperature detector and second pressure detector configured to detect a temperature and pressure of the exhaust gas (see temperature sensor 17 and pressure sensor 18 upstream of filter 5a in Fig. 1), and a processor (ECU, 10) configured to make a comparison of the temperature in the casing with the temperature of the exhaust gas, open the switch valve based on the comparison and preheat the honeycomb-like filter with the exhaust gas (see col. 5 lines 18-33 where Kumagai discloses a "filter accumulation amount detection function" which compares the pressure and temperature upstream of the filter (exhaust pressure/temperature) and the pressure and temperature downstream of the filter (casing temperature/pressure) and subsequently opens a switch valve (8) to initiate the filter regeneration).

While Kumagai discloses a filter for high temperature operation and a filter to burn soot, Kumagai fails to teach the porous filter made from sintered silicon carbide and containing an exhaust gas purification catalyst.

Ono also discloses a exhaust gas purification system and teaches a sintered silicon carbide filter comprising a exhaust gas purification catalyst, in order to provide a preferential filter than can withstand the high temperature requirements of the regeneration cycle and facilitate the burning of collected soot ([0012]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the sintered silicon carbide filter with exhaust purification catalyst, as taught by Ono, in the exhaust gas purification system of Kumagai in order to provide a filter than can preferentially withstand the high temperature requirements of the regeneration cycle and facilitate the burning of collected soot.

Furthermore, Kumagai teaches a switching valve that is positioned upstream of the filter instead of downstream of the filter. However, changing the location of the switching valve would not modify the operation of the regeneration system. Positioning the switch valve upstream of the filter effectively controls the flow of gas through the filter, similar to positioning the location of the switch valve downstream of the filter. As such, such modification is a mere rearrangement of the system parts that would not modify the operation of the system, and would have been obvious to one of ordinary skill in the art at the time of the invention. See In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950).

Regarding claims 7, 8, 16 and 17, Kumagai further discloses a heating means (electric heater, 7a, 7b) configured to heat the honeycomb (see Fig. 1).

9. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumagai (US 6,090,187) and Ono et al. (JP 11-236813 A1) as applied to claims 1 and 12 above, and further in view of Sasaki et al. (US 5,732,554).

Regarding claims 5 and 14, while Kumagai discloses the use of a switching valve (9) in the exhaust purification system, Kumagai is silent as the exact type of valve that is employed in this service.

Sasaki also discloses an exhaust gas purification device that utilizes a switching valve. Sasaki teaches an electromagnetic valve (51) that is preferentially utilized in a switching valve service (col. 4 lines 53-61).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize an electromagnetic valve (as in Sasaki) in the exhaust gas purification system of modified Kumagai as a preferential valve to use in switching valve service.

10. Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumagai (US 6,090,187) in view of Ono et al. (JP 11-236813 A1) as applied to claims 1 and 12 above, and further in view of Kuwamoto et al. (US 5,853,459).

Regarding claims 6 and 15, Kumagai, as discussed in claims 1 and 12 above, further discloses a processor (10) comprising a CPU, a RAM, and a ROM (see Fig. 1, ECU), however, Kumagai is silent on the temperature detectors (first and second) comprising a thermocouple in the high temperature environment of regenerating filters.

Kuwamoto also discloses an exhaust purification system that utilizes temperature sensors. Kuwamoto teaches thermocouples as a preferential way of obtaining temperature readings in a high temperature environment (col. 6l lines 42-48).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize thermocouples, as in Kuwamoto, in the exhaust gas purification system of modified Kumagai as a preferential means for obtaining temperature readings in high temperature service.

Response to Arguments

11. Applicant's arguments with respect to claims 1, 5-9, 11, 12, 14-18, 20 and 21 have been considered but are moot in view of the new ground(s) of rejection necessitated by amendment.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Merkling whose telephone number is (571) 272-9813. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJM

ALEXA D. NECKEL
SUPERVISORY PATENT EXAMINER